Exercise 1 *Perpendicular lines*

Remember that two lines in the plane are perpendicular if the intersect at a right-angle, of 90°. Any vertical line is perpendicular to any horizontal line. Two non-vertical lines are perpendicular if and only if their slopes multiply to -1. That is, if the slope of the first line m_1 and the slope of the second line m_2 have $m_1 m_2 = -1$.

(a) *Suppose a line has equation $y = 3x + 4$. An equation of the line perpendicular to this line, with y-intercept at $(0, -2)$ is given in slope-intercept form by* $y = \boxed{-1/3}\,x + \boxed{-2}$.

(b) *Suppose a line has equation $x = -2$. An equation of the line perpendicular to this, which passes through the point $(4, 2)$ has equation* $y = \boxed{2}$.

(c) *Suppose a line has equation $5x + 2y = -4$. An equation of the line perpendicular to this, which passes through the point $(2, -3)$ is given in point-slope form by* $y - \boxed{-3} = \boxed{2/5}\left(x - \boxed{2}\right)$.